Claims

1. A compound body having a first body part (15) made of glass and a mechanical connection (20, 60),

characterized in that

connection (20, 60) is melted onto the first body part (15) and contains at least 99 % by weight of aluminum.

2. The compound body according to claim 1, characterized by a second body part (10, 14, 55, 61) made of metal or glass, wherein connection (20) joins both body parts (10, 14, 15, 55, 61).

3. The compound body according to claim 1, characterized in that the first body part (15) has an opening closed by means of connection (20, 60).

4. The compound body according to one or more of the above claims, characterized in that the first body part (15) has at least regionally rounded edges (15a) in the area where it contacts connection (20, 60).

5. The compound body according to one or more of the previous claims, characterized in that the first body part (15) has at least regionally reinforcements of material (15a) in the area where it contacts connection (20, 60).

6. The compound body according to claim 3, characterized in that the opening contains an auxiliary part (51) which is made of a material, preferably glass, having a coefficient of thermal expansion less than that of

aluminum, and is connected with the first body part (15) by means of connection (20, 60).

7. The compound body according to claim 3, characterized in that the opening contains a second body part (59) which serves as an inner electrode and includes a metallic material having a coefficient of thermal expansion less than that of aluminum, preferably a sintered body, and which is connected with the first body part (15) by means of connection (20, 60).

8. The compound body according to claim 7, characterized in that an uncovered area portion of the second body part (59) protrudes into the compound body interior while the outwardly protruding surface of the second body part (59) is coated by connection (20, 60).

9. The compound body according to one or more of the previous claims, characterized in that connection (20, 60) comprises a grainy or powdery filler (60) having a coefficient of thermal expansion which is less than that of aluminum.

10. The compound body according to claim 9, characterized in that filler (60) is glass powder, in particular quartz glass powder, and/or oxides and/or metal, in particular tungsten or molybdenum.

11. The compound body according to one or more of the previous claims, characterized in that the first body part (15) and connection (20, 60) are parts of an air-tight or vacuum-tight housing.

12. The compound body according to claim 11, characterized in that inside the housing an electrode (41, 53, 54, 61 - 63, 72) is provided which is electrically connected to connection (20, 60).

13. The compound body according to claim 12, characterized in that the electrode is held mechanically by connection (20, 60).

14. The compound body according to one or more of the previous claims and claim 2, characterized in that the first body part (15) is part of a glass housing and the second body part (10, 14, 55, 61) is a metallic wire (10) which extends from the interior to the exterior of the housing.

15. The compound body according to one or more of the previous claims, characterized in that the glass is an oxidic glass, in particular hard glass or quartz glass.

16. The compound body according to one or more of the previous claims, characterized in that the softening temperature of the glass is above the melting temperature of connection (20, 60).

17. The compound body according to one or more of the previous claims and claim 2, characterized in that the metal includes copper and/or nickel and/or tantalum and/or tungsten and/or molybdenum.

18. The compound body according to one or more of the previous claims, characterized in that it is part of a

vacuum-tight electron tube, a gas discharge tube, a flash bulb or a means of lighting.

19. The compound body according to claim 2, characterized in that the second body part (10, 14, 55, 61) is a preferably cylindrical and at least partially aluminum-coated glass body (55) which partially extends into an opening of the first body part (15) and partially protrudes therebeyond.

20. The compound body according to one or more of the previous claims, characterized in that the first body part (15) is a glass tube, at least one end of which is closed by connection (20, 60).

21. The compound body according to claim 20, characterized in that the second body part (10, 14, 55, 61) includes a metallic part (61) preferably made of molybdenum and/or tungsten and inserted in the tube interior in connection (20, 60), and a wire (10) inserted in connection (20, 60) from outside.

22. The compound body according to one or more of the previous claims, characterized in that the first body part (15) is a glass tube, one end of which is closed by connection (20, 60), connection (20, 60) including cesium and/or barium and/or the oxides thereof on the inside (72).

23. The compound body according to one or more of the previous claims, characterized in that the first body part (15) is a glass tube, one end of which is closed by connection (20, 60), connection (20, 60) having a solder layer (71) on the outside.

24. The compound body according to one or more of the previous claims, characterized in that the metallic amount of connection (20, 60) is an aluminum alloy having at least 90 % by weight of aluminum.

25. The compound body according to one or more of the previous claims, characterized in that the metallic amount of connection (20, 60) comprises at least 98 % by weight aluminum.

26. The compound body according to claim 24 or 25, characterized in that the amount lacking from 100 % includes silicon and/or magnesium and/or manganese and/or calcium.

27. The compound body according to one or more of the previous claims, characterized in that the connection has a metallic coating on the external side, containing in particular one or more of elements tin, silver, copper, zinc, cadmium, lead or alloys of these elements.

28. The compound body according to one or more of the previous claims and according to claim 3, characterized in that the first body part (15) is a tube which, at least regionally, has a cross-sectional shape differing from that of the free area (82) in an area of its closure (81) by connection (20, 60).

29. The compound body according to claim 28, characterized in that in the closure area (81) the tube together with connection (20, 60) have a cross-sectional shape in which a cross-section through the connection has a

dimension DV of at most 1 mm, preferably 0,3 mm, more preferably 0.1 mm, in each case.

30. The compound body according to claim 28 or 29, characterized in that in the closure area (81) the tube together with connection (20, 60) has a cross-sectional shape in which a cross-section through the connection has a dimension DV which in each case is at most 10 %, preferably 3 %, more preferably 1 %, of a cross-sectional dimension DK through the entire body at the same location.

31. The compound body according to claim 29 or 30, characterized in that in closure area (81) the tube together with connection (20, 60) has a cross-sectional shape in which a cross-section through the connection has a dimension BV greater than the inside diameter DI of the tube in the free area (82).

32. The compound body according to one or more of the previous claims and according to claim 3 and claim 20, characterized in that at least one end of the tube is bent.

33. The compound body according to claim 32, characterized in that the bend has an angle (μ) ranging between 45° and 135°, preferably between 80° and 100°.

34. The compound body according to claim 32 or 33, characterized in that connection (20, 60) serves as an outer electric, preferably solderable, connection.

35. The compound body according to one or more of claims 32 to 34, characterized in that closure area 81 is made according to one or more of claims 24a to 24d.

36. The compound body according to one or more of the previous claims, characterized in that at no point in time connection (20) has a coating serving oxidation protection, in particular made of another metal.

37. A flash bulb comprising a compound body according to one or more of claims 1 to 36.

38. A process for the production of a mechanical connection and in particular a compound body according to one or more of the previous claims, comprising the steps of

providing a first body part made of, or containing, glass, and

attaching a connection to the first body part, the connection containing aluminum,

characterized in that the connection

- contains aluminum having a purity of at least 99 % by weight,

- is heated above its melting point and melted on the first body part, and

- is freed from oxide components before it is melted on the first body part.

39. The process according to claim 38, characterized in that the connection is freed from oxide components after heating it above its melting point.

40. The process according to claim 38 or 39, characterized in that the first body part is connected with a second body part by the connection.

41. The process according to claim 38 or 39, characterized in that an opening in the first body part is closed by means of the connection.

42. The process according to one or more of claims 38 to 41, characterized in that prior to the production of the connection the first body part is at least regionally rounded in the area where it contacts the connection, in particular by melting on the body part.

43. The process according to one or more of claims 37 to 40, characterized in that prior to the attachment of the connection a reinforcement of material is formed at least regionally on the first body part in the area where it contacts the connection, in particular by melting on the body part.

44. The process according to one or more of claims 38 to 42 and claim 41, characterized in that an auxiliary part made of a material having a coefficient of thermal expansion less than that of aluminum, preferably glass, is positioned in the opening and then connected with the first body part by means of the connection.

45. The process according to one or more of claims 38 to 44, characterized in that prior to the attachment of the connection the aluminum-containing substance is mixed with a grainy or powdery filler having a coefficient of thermal expansion less than that of aluminum and joined by melting.

46. The process according to one or more of claims 38 to 45, characterized in that melting the connection on the first body part takes place in the absence of oxygen, preferably under protective gas or in a vacuum.

47. The process according to claim 46, characterized in that as a protective gas a gas is used with which the closed compound body shall be filled.

48. The process according to one or more of claims 38 to 47, characterized in that melting the connection on the first body part takes place at a temperature at which the connection is melted while the glass is not softened.

49. The process according to claim 48, characterized in that melting the connection on the first body part takes place at a temperature at which the diffusion of aluminum oxide into the glass is facilitated.

50. The process according to one or more of claims 38 to 49, characterized in that when the mechanical connection is produced the connection material and the first body part are jointly heated gradually.

51. The process according to one or more of claims 38 to 50, characterized in that a tubular body part is used whose end is flattened.

52. The process according to claim 51, characterized in that the flattening takes place after the attachment of the connection, the glass being heated above its softening point prior to flattening.

53. The process according to claim 51 to 52, characterized in that the tube end is bent.

54. The process according to one or more of claims 38 to 53, characterized in that the connection is heated to at least 700°C before it is melted on the first body part.

55. The process according to one or more of claims 38 to 54, characterized in that the connection is heated and freed from oxides under protective gas.